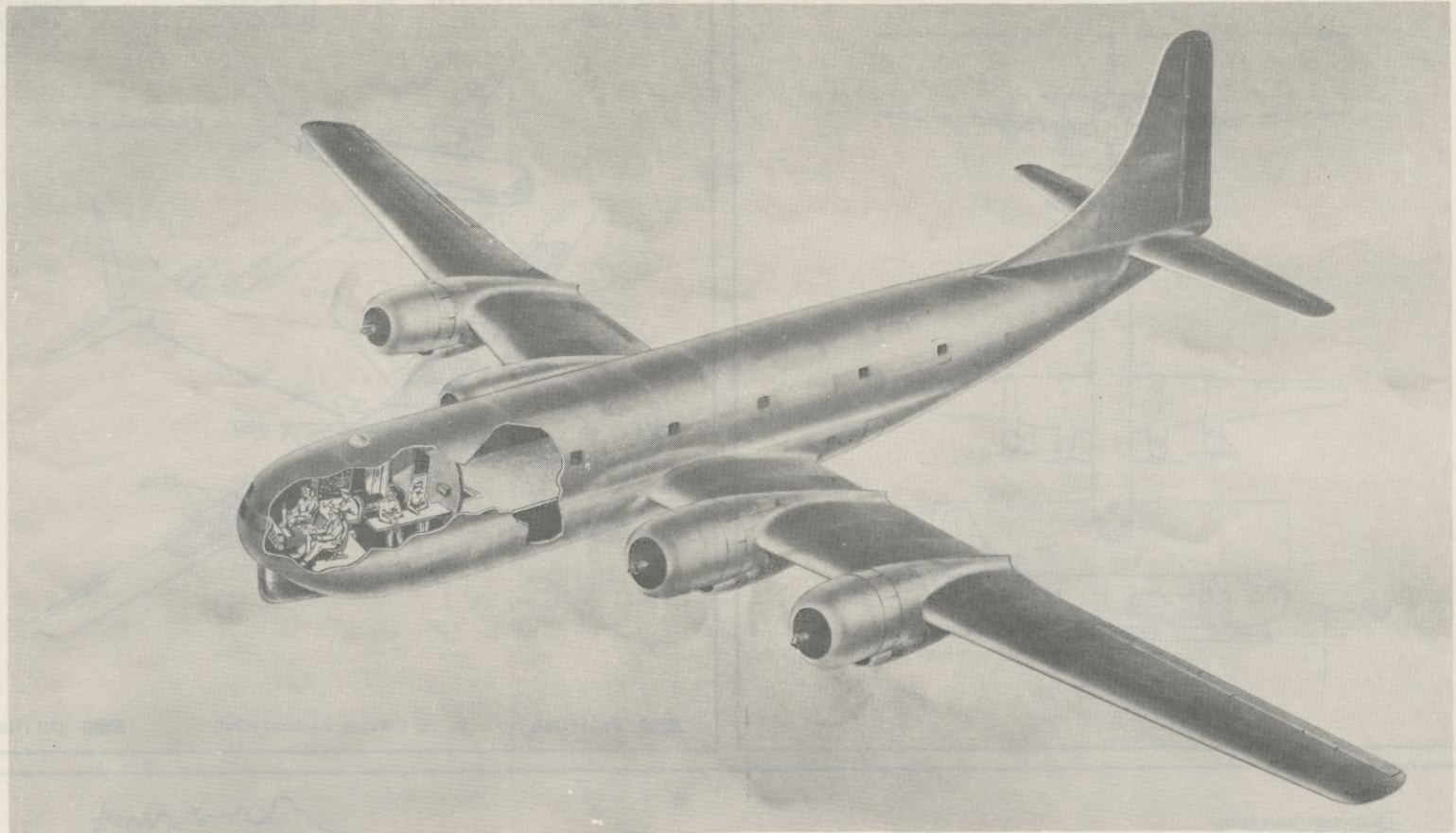


UNCLASSIFIED

SERVICE



## *Standard Aircraft Characteristics*

BY AUTHORITY OF  
THE SECRETARY  
OF THE AIR FORCE

**C-97C**  
**STRATOFREIGHTER**  
**Boeing**

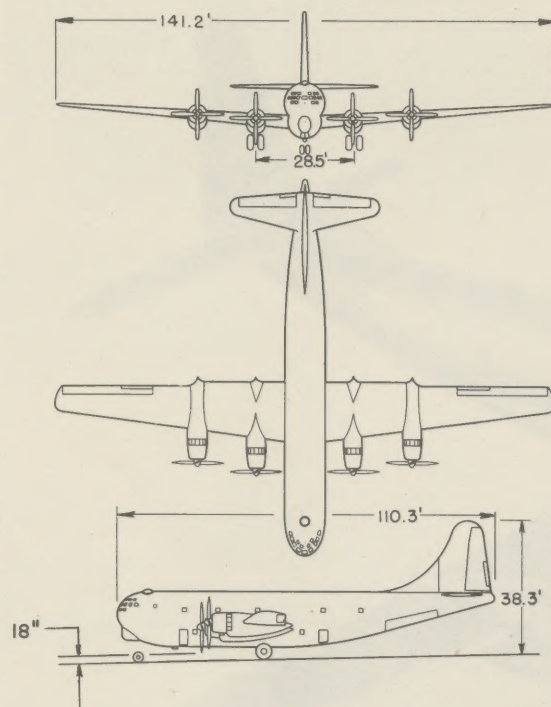
FOUR R-4360 - 65  
RRATT & WHITNEY

9 MAR 56

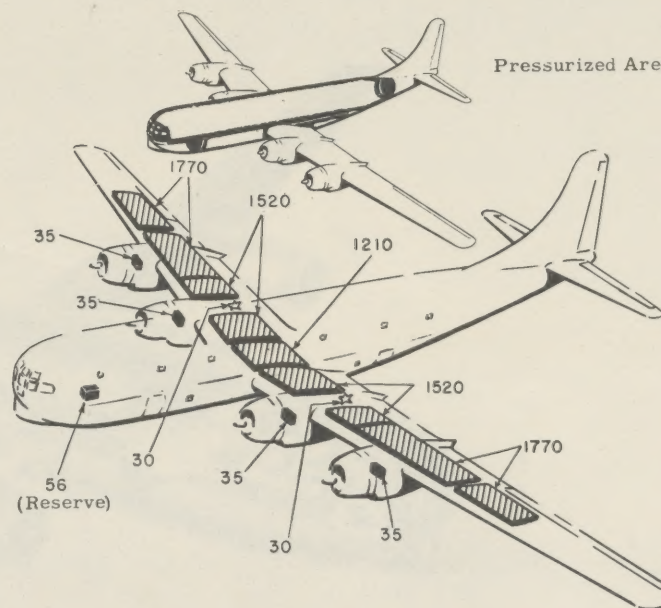
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C-97C





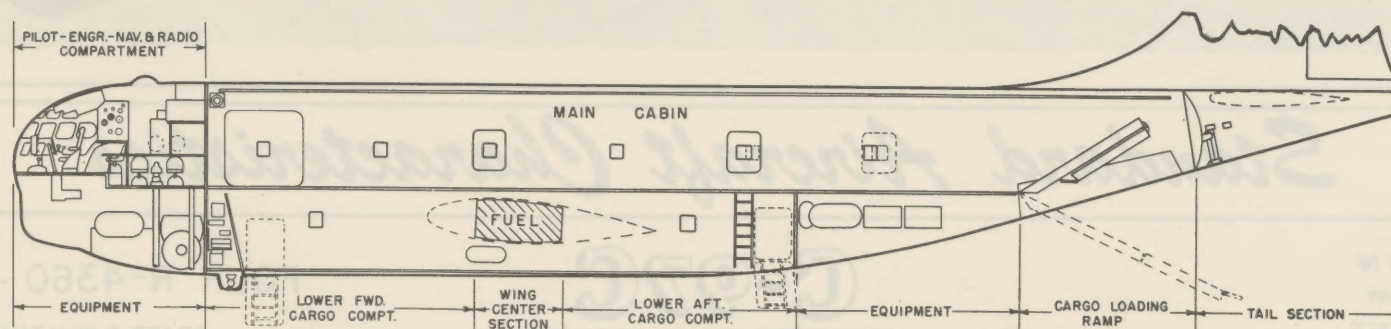
Wing Area ..... 1768.7 sq ft      Wing Section ..... Boeing 117  
 Aspect Ratio ..... 11.5      M.A.C. .... 154.4 in.



▨ Fuel (Gal)

☆ Water Alcohol (Gal)

■ Oil (Gal)



C-97C

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**POWER PLANT**

No. & Model ..... (4) R-4360-65  
 Mfr ..... Pratt & Whitney  
 Spec No. .... A-7051F  
 Turbo Superch ..... (4) BH-4  
 Turbo Mfr ..... General Electric  
 Red. Gear Ratio ..... 0.375  
 Prop Mfr ..... Hamilton Std.  
 Blade Design No. .... 2J17B3-8W  
 Prop Type.. Hydra, F.F., Reverse  
 No. Blades ..... 4  
 Prop Dia ..... 16'6"  
 Augmentation ..... Water/Alcohol

**ENGINE RATINGS**

BHP - RPM - ALT - MIN

T.O: \*3500 - 2700 - S.L. - 5

Mil: \*3500 - 2700 - 500 - 30  
 3250 - 2700 - 1000 - 30

Nor: 2650 - 2550 - 5500 -Cont

\* Wet

Note: Increased altitude performance  
 is available through use of external  
 turbo-supercharging.

**DIMENSIONS**

Wing  
 Span ..... 141.2'  
 Incidence ..... 4°0'  
 Dihedral ..... 4°29'  
 Sweepback (LE) ..... 7°1'  
 Length ..... 110.3'  
 Height ..... 38.3'  
 Height (fin folded) ..... 26.6'  
 Tread ..... 28.5'  
 Prop Grd. Clearance ..... 18"

**Mission and Description**

Navy Equivalent: None

Mfr's Model: 367-4-29

The principal mission of the C-97C is the transportation of an airborne task force complete with materiel or transportation of troops, cargo, or casualties.

The C-97C is basically the C-97A with the following major changes: Cleveland Pneumatic Landing Gear, structural improvements to increase design gross weight and payload and a forward cargo door.

The fuselage is arranged to accommodate a variety of materiel in numerous combinations or airborne task force units. The size of the body and doors permit major items of materiel such as 2 1/2 T. 6 x 6 trucks with canvas cabs or T9-E1 light tanks to be loaded under their own power, carried fully assembled ready for immediate use at their destination.

**Development**

Contract approval: ..... Mar 50  
 First flight date: ..... Jan 51  
 First acceptance: ..... Jan 51  
 Production completed: ..... Jun 51

**G E N E R A L****CARGO**

Max Load ..... 68,080  
 (limited by strength)  
 Typical Items ..... 2 1/2 T.  
 Truck (6 x 6)  
 Items carried externally: Two 3 or 4  
 Blade Props.

**CAPACITIES**

Main Compt. (tot. vol) ... 4309 cu ft  
 Main Compt. (tot. area) ... 559 sq ft  
 Lower Compt. (tot. vol) ... 1618 cu ft  
 Lower Compt. (tot. area) ... 222 sq ft  
 Treadways (single axle load) .....  
 12,700 lb

Electric Hoist with Snatch Block ...  
 5000 lb

Electric Hoist with Hoisting Hook ..  
 2500 lb

Loading Ramp (2 treads)

**LIMIT FLOOR LOAD**

Main Deck ..... 200 lb/sq ft  
 Lower Deck ..... 100 lb/sq ft

**CLEARANCES**

MAIN CABIN:  
 Height ..... 8.0 ft  
 Length ..... 63.6 ft  
 Width (floor level) ..... 8.8 ft

**MAIN LOADING DOOR:**

Length ..... 14.3 ft  
 Width (fore/aft) ..... 9.3/6.4 ft  
 Height from Grd (fore/aft) .....  
 7.8/9.6 ft

CARGO DOOR (right side between  
 sta. 246 & 326)

Height ..... 6.5 ft  
 Width ..... 6.7 ft

**PERSONNEL**

Crew ..... 5  
 Troops (max) ..... 130  
 Litters (max) ..... 79  
 Attendants ..... 4

**WEIGHTS**

Loading	Lb	L. F.
Empty	75,762(A)	
Basic	78,250(C)	
Design	150,000	2.48
Combat	*94,080	
Max T.O (overload)	+175,000	2.00
Max T.O (normal)	+150,000	2.48
Max Land	+160,000	2.00

(A) Actual  
 (C) Calculated  
 \* For Basic Mission  
 † Limited by strength  
 ‡ Limited by gear strength  
 See page 6, note (b)

**F U E L**

Location	No. Tanks	Gal
Wg, outbd	2	3540
Wg, inbd	2	3040
Wg ctr	1	1210
	Total	7790
Grade		115/145
Specification		MIL-F-5572

**OIL**

Nacelles	4	140
Fus (Reserve)	1	56
	Total	196
Grade		S-1120; W-1100
Specification		MIL-O-6082
		WATER/ALCOHOL
Nac., inbd	2	60

**ELECTRONICS**

VHF Command ..... AN/ARC-49  
 MF Command (Transm) AN/ART-13 A  
 MF Command (Receiver) .. BC-454B  
 Liaison ..... AN/ARC-8  
 Interphone ..... AN/AIC-8  
 Nav. Radar ..... AN/APS-42  
 Radio Altimeter ..... AN/APN-1  
 Radio Compass ..... AN/ARN-6  
 Glide Path ..... AN/ARN-5B  
 Loran ..... AN/APN-9A  
 IFF ..... AN/APX-6  
 Radio Altimeter ..... SCR-718C  
 VHF Nav. Recvr. .... AN/ARN-14  
 Marker Beacon ..... AN/ARN-12  
 See page 6, note (e) for additional data.



# Loading and Performance—Typical Mission

C O N D I T I O N S			BASIC MISSION	NORMAL MISSION	DESIGN LOAD RANGE	MAX CARGO MISSION (OVERLOAD)	MAX CARGO RADIUS (NORMAL)	HIGH ALTITUDE RANGE	FERRY RANGE
			I	II	III	IV	V	VI	VII
TAKE-OFF WEIGHT		(lb)	175,000	148,915	150,000	175,000	138,800	150,000	127,460
Fuel at 6.0 lb/gal (grade 115/145)		(lb)	32,720	29,605	23,200	26,200	12,000	23,200	46,740
Payload (cargo)		(lb)	61,560	38,590	46,080	68,080	46,080	46,080	None
Wing loading		(lb/sq ft)	101.7	86.5	87.1	101.7	80.6	87.1	74.1
Stall speed (power off)		(kn)	108	99	99	108	95	99	92
Take-off ground run at SL	①	(ft)	6500	4070	4150	6500	3350	4150	2700
Take-off to clear 50 ft	①	(ft)	8150	5090	5200	8150	4180	5200	3350
Rate of climb at SL	③	(fpm)	555	920	900	555	1085	900	1270
Rate of climb at SL (one engine out)	②	(fpm)	340	680	660	340	825	660	1030
Time: SL to 10,000 ft	③	(min)	19.0	11.3	11.5	19.0	9.5	11.5	8.0
Time: SL to 20,000 ft	③	(min)	46.5	25.0	25.6	46.5	20.5	25.6	16.9
Service ceiling (100 fpm)	③	(ft)	22,500	28,700	28,500	22,500	30,150	28,500	31,800
Service ceiling (one engine out)	②	(ft)	5000	15,800	15,300	5000	21,300	15,300	26,800
COMBAT RANGE	④	(n. mi)	1661	1800	1318	1253	—	1191	3824
Average cruising speed		(kn)	204	196	198	205	—	244	176
Cruising altitude		(ft)	5000	5000	5000	5000	—	20,000	5000
Total mission time		(hr)	8.15	9.18	6.67	6.13	—	4.98	21.72
COMBAT RADIUS	④	(n. mi)	1000	1000	—	764	319	—	—
Average cruising speed		(kn)	182	180	—	182	176	—	—
Cruising altitude		(ft)	5000	5000	—	5000	5000	—	—
Total mission time		(hr)	10.98	11.14	—	8.43	3.63	—	—
FIRST LANDING WEIGHT	⑤	(lb)	155,640	132,500	—	159,470	132,500	—	—
Ground roll at SL		(ft)	3380	2880	—	3460	2880	—	—
Total from 50 ft		(ft)	4680	4050	—	4790	4050	—	—
COMBAT WEIGHT	⑤	(lb)	94,080	93,910	129,150	91,390	86,420	129,150	83,715
Combat altitude		(ft)	5000	5000	5000	5000	5000	20,000	5000
Combat speed	②	(kn)	281	281	272	282	283	304	283
Combat climb	②	(fpm)	2225	2230	1310	2310	2470	935	2560
Combat ceiling (500 fpm)	②	(ft)	34,500	34,550	28,300	35,000	35,900	28,300	36,400
Service ceiling (100 fpm)	③	(ft)	36,600	36,650	31,550	37,000	37,700	31,550	38,100
Service ceiling (one engine out)	③	(ft)	32,350	32,400	26,400	32,800	33,600	26,400	34,000
Take-off ground run at SL	①	(ft)	1350	1340	—	1025	1010	—	—
Take-off to clear 50 ft	①	(ft)	1675	1660	—	1560	1375	—	—
Max rate of climb at SL	②	(fpm)	2660	2665	1715	2745	2900	1715	2990
Max speed at 26,000 ft	②	(kn)	334	334	318	335	337	318	338
Basic speed at 25,000 ft	②	(kn)	331	331	314	332	334	314	335
LANDING WEIGHT	⑤	(lb)	83,010	82,850	129,150	82,675	81,960	129,150	83,715
Ground roll at SL		(ft)	1800	1800	2800	1790	1775	2800	1810
Total from 50 ft		(ft)	2690	2690	3960	2680	2665	3960	2710

NOTES

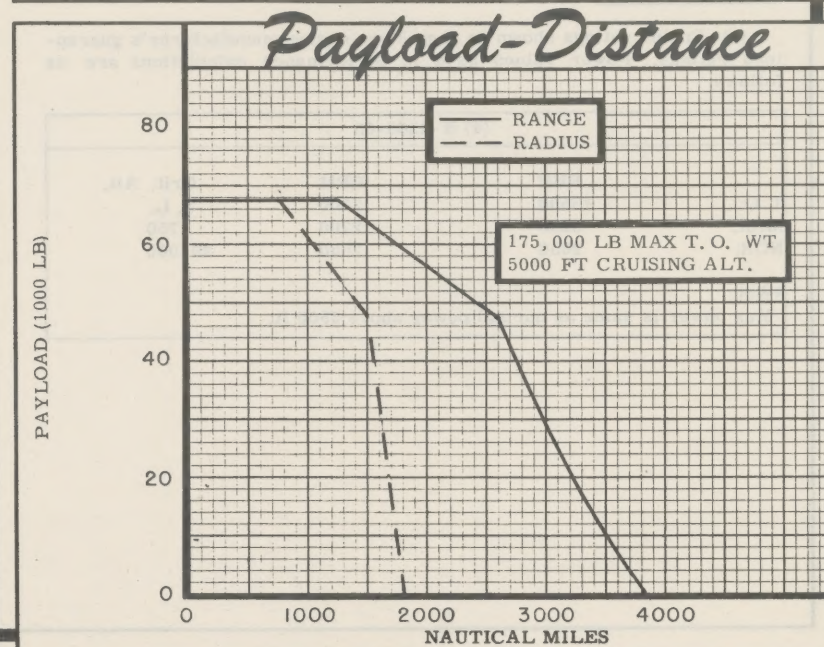
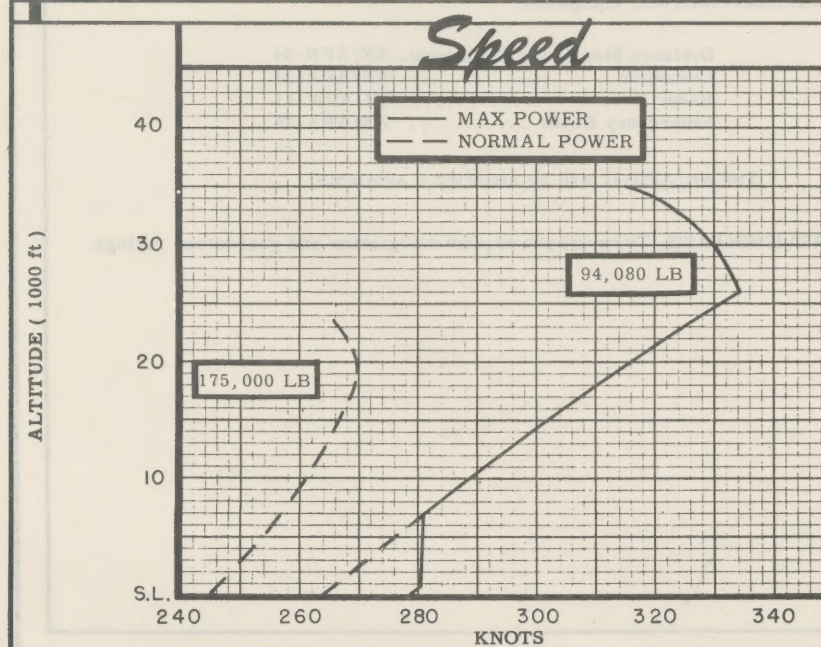
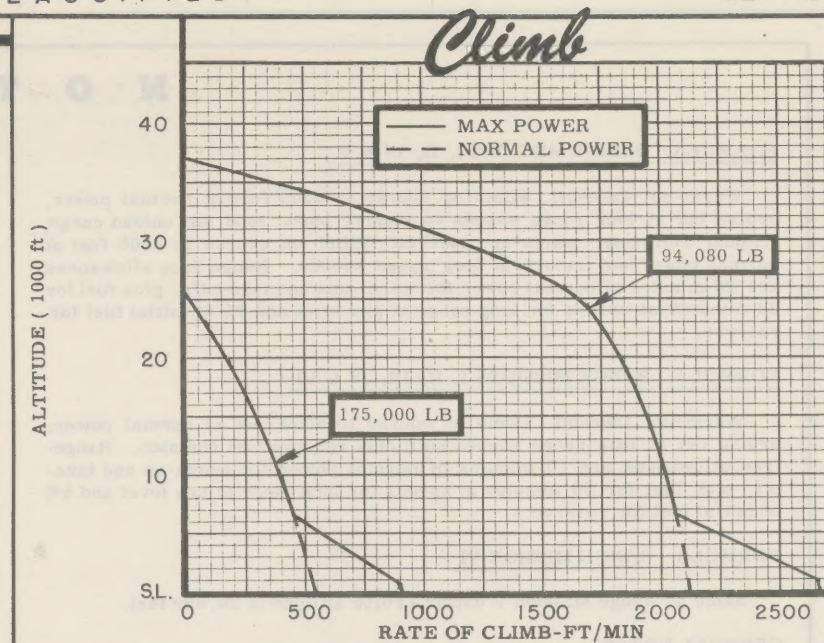
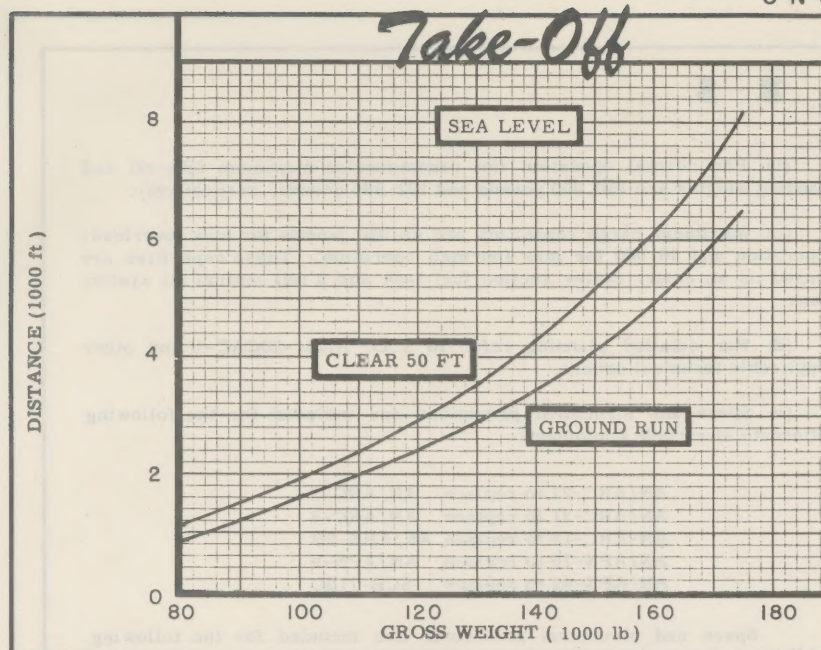
- ① T.O. power  
 ② Max power  
 ③ Normal power (same as Max above 6500 ft)

- ④ Detailed descriptions of RADIUS and RANGE missions are given on page 6  
 ⑤ For Radius Mission if radius is shown

## PERFORMANCE BASIS:

- (a) Data source: Flight test  
 (b) Performance is based on powers shown on page 6







**N O T E S**FORMULA: RADIUS MISSIONS I, II, IV & V

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds to remote base, land and unload cargo. Without refueling, warm-up, take-off, climb on course to 5000 feet at normal power and return at long range speeds. Range free allowances are 20 minutes of normal power for warm-ups and take-offs, plus fuel for 30 minutes at speeds for long range at sea level and 5% of initial fuel for reserve.

FORMULA: RANGE MISSIONS I, II, III, IV & VII

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds until only reserve fuel remains. Range-free allowances are 10 minutes of normal power for warm-up and take-off, plus fuel for 30 minutes at speeds for long range at sea level and 5% of initial fuel for reserve.

FORMULA: RANGE MISSION VI

Same as Range Mission V except cruise altitude is 20,000 feet.

GENERAL NOTES:

(a) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used in performance calculations are as follows:

(4) R-4360-65			
	BHP	RPM	Crit. Alt.
T. O:	*3500	2700	S. L.
MAX:	3250	2700	750
NOR:	2650	2550	26,000

\*Wet  
Max power is same as normal power above 6500 ft.

(b) For normal operation the recommended maximum take-off and landing weights are 150,000 pounds and 132,500 pounds, respectively.

(c) Maximum cargo capacities are 68,080 pounds for max (overload) operation and 46,080 for max (normal) operation. These capacities are based on an empty center section fuel tank and a full central oil system tank.

(d) For detailed planning refer to T.O. ANO1-20CAC-1 and other applicable technical orders.

(e) Space and structural provisions are included for the following alternate electronic equipment:

AN/ARC-27 to replace AN/ARC-3  
 AN/ARC-21 to replace AN/ARC-8  
 AN-ARC-18 to replace AN/ARN-5B  
 AN/APN-70 to replace AN/APN-9  
 AN/APN-42 to replace SCR-718C

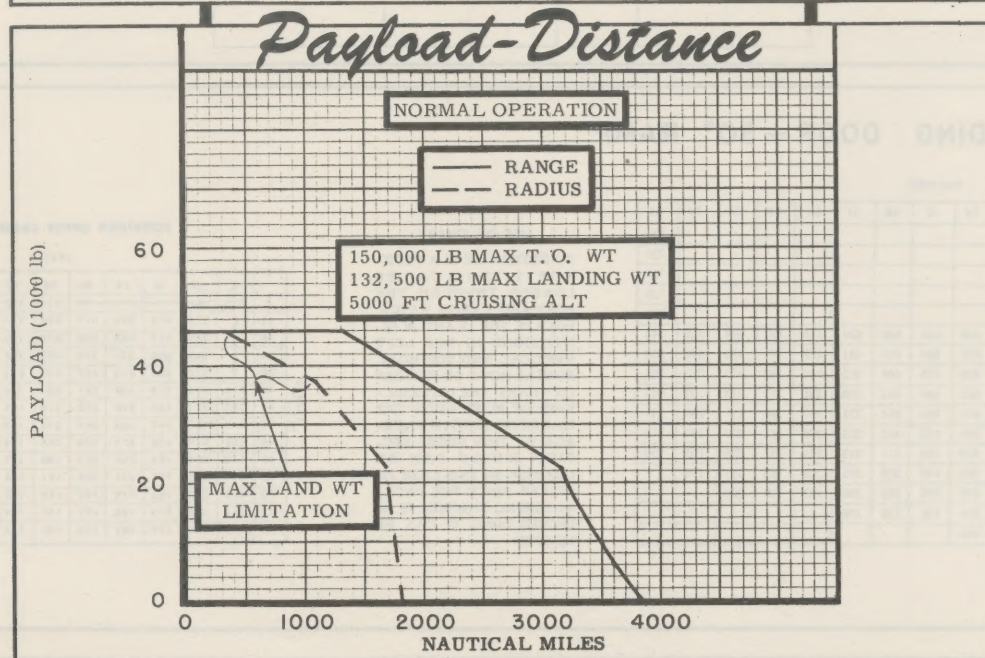
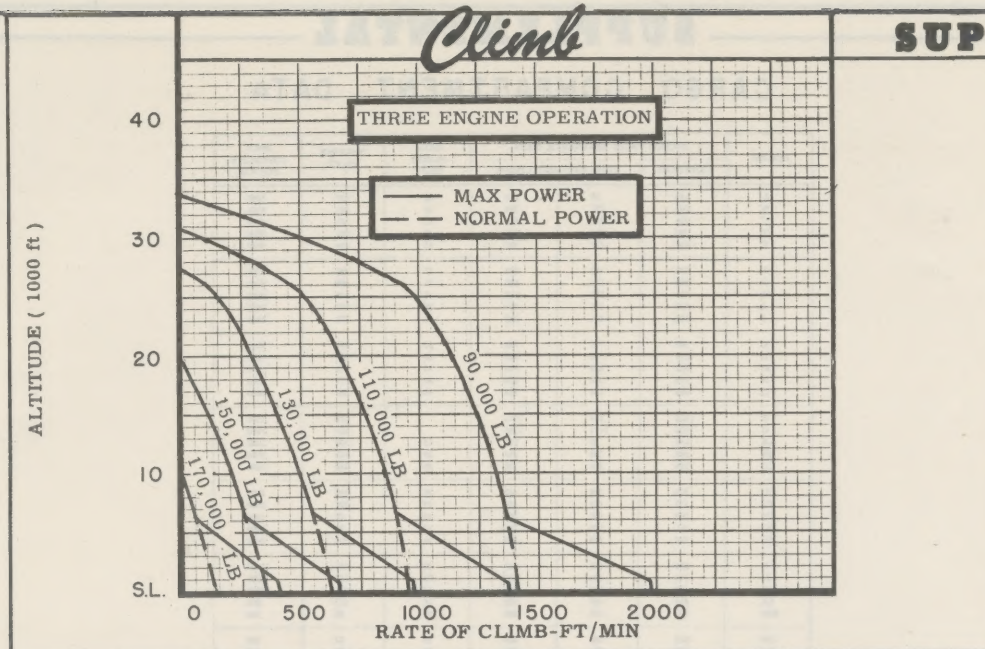
Space and structural provisions are included for the following additional electronic equipment:

Distance Measuring Equipment..AN/APN-34  
 Computer ..... AN/ARA-21  
 Radar Beacon ..... AN/APW-11  
 Emergency Keyer ..... AN/ARA-26

The AN/APS-42 will be installed if available.

REVISION BASIS: To revise power plant designation and guaranteed ratings.



**SUPPLEMENTAL**



U N C L A S S I F I E D

## SUPPLEMENTAL

## CARGO COMPARTMENT DATA

COMPT	INCHES FROM REFERENCE DATA			AREA FLOOR SQ FT	VOLUME CU FT	MAX CAPACITY POUNDS
	CENTROID	COMPARTMENT LIMITS				
A	140	50	230	81	620	2000
B	262	230	294	47	381	9500
C	336	294	338	47	362	9500
D	390	338	422	47	381	9500
E	453	422	483	45	344	9000
F	509	483	534	37	288	7500
G	560	534	585	37	288	7500
H	616	585	646	45	344	9000
I	670	646	694	35	271	7000
J	718	694	742	35	271	7000
K	766	742	790	35	271	7000
L	814	790	838	35	271	7000
M	862	838	886	35	271	7000
N	910	886	934	35	271	8000
O	964	934	994	44	336	5000
P	1004	994	1074		518	1500
Q	1120	1074	1166		357	1500
AA	140	50	230	15	300	1000
BB	262	230	294	20	218	2000
CC	326	294	358	30	220	3000
DD	380	258	422	31	209	3100
EE	453	422	483	27	202	2700
FF	509	483	534	10	70	1000
GG	560	534	585	10	70	1000
HH	616	585	646	24	204	2400
II	670	646	694	23	157	2300
JJ	718	694	742	23	147	2300
KK	766	742	790	24	131	2400
LL	814	790	838	10	115	500
MM	862	838	886	10	95	500
NN	910	886	934	10	74	500
OO	964	934	994	10	56	500

## LOADING DOOR - 30° RAMP

INCHES														
	6	12	18	24	30	36	42	48	54	60	66	72	78	84
6	730													730
12	730													730
18	730													730
24	730													730
30	730													730
36	730				730	630	630	620	620	610	594	578	559	545
42	730				730	630	500	495	494	485	472	455	440	350
48	730				730	620	495	408	402	394	382	371	359	263
54	730				730	620	494	402	339	331	323	313	303	305
60	730				730	610	485	394	331	287	280	271	239	157
66	730				730	594	472	382	323	280	245	237	185	113
72	730				730	578	455	371	313	271	237	200	151	100
78	730				730	569	440	359	303	229	185	151	100	
84	730				730	545	350	263	206	157	125	100		
90	730				730	500	300	196	150	106				
96	730	730	712	270	166	100								

## USE OF CHART

TO DETERMINE IF A PACKAGE 12x20x140 CAN BE LOADED THROUGH THE FORWARD CARGO HATCH LOCATE THE 12 AND 20 DIMENSIONS IN THE LEFT VERTICAL AND TOP HORIZONTAL ROWS OF FIGURES ON CHART. THE INTERSECTION OF ROWS GIVES THE MAXIMUM LENGTH PACKAGE OF THIS CROSS SECTION WHICH CAN BE LOADED—IN THIS CASE 152 INCHES. SINCE THE PACKAGE BEING CHECKED IS 140 INCHES LONG, IT CAN BE LOADED.

## FORWARD UPPER CARGO DOOR

INCHES													
	6	12	18	24	30	36	42	48	54	60	66	72	
6	714					714	667	611	557	529	431	291	
12		578	564	546	517	499	471	439	414	383	338	246	
18		564	419	409	396	379	365	347	328	309	280	214	
24		546	409	327	319	309	298	286	273	254	238	190	
30		517	396	319	267	261	252	244	234	225	208	171	
36	714	499	379	309	261	225	219	213	205	198	181	157	
42	667	471	365	298	252	219	194	189	183	177	167	144	
48	611	439	347	286	244	213	189	170	166	161	153	131	
54	557	414	328	273	234	205	183	166	152	148	141	117	
60	529	383	309	254	225	198	177	161	148	135	128	113	
66	431	338	280	238	208	181	167	153	141	128	117	107	
70	372	286	253	219	193	174	158	145	133	121	110	101	
72	291	246	214	190	171	157	144	131	117	113	107	92	
76	282	239	207	184	166	151	139	125	112	107	101	83	

C-97C

U N C L A S S I F I E D

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## SUPPLEMENTAL

## PACKAGE DIMENSIONS

## AFT CARGO HATCH

INCHES

	4	8	12	16	20	24	28	32	36	40	42
4	155	155	155	155	155	155	155	155	150	125	125
8	155	130	130	130	130	130	125	125	125	100	100
12	155	130	110	110	110	110	105	105	105	85	85
16	155	130	110	95	95	95	95	95	95	70	70
20	155	130	110	95	85	85	80	80	80	65	65
24	155	130	110	95	85	70	70	70	70	55	55
26	155	130	110	95	85	70	55	55	55	45	45

INCHES

## FORWARD CARGO HATCH

INCHES

		4	8	12	16	20	24	28	32	36	40	44
INRUS	4	168	168	167	167	167	166	166	90	80	72	66
	8	168	166	166	166	165	165	164	90	80	72	66
	12	167	166	153	152	152	151	150	89	80	72	66
	16	167	166	152	132	132	131	130	89	79	72	66
	20	167	165	152	132	117	117	116	88	79	71	66
	24	166	165	151	131	117	105	104	88	79	71	66
	26	166	164	150	130	116	104	96	87	78	70	66
	28	166	164	150	130	116	104	96	87	78	70	66

INCHES

## AFT ENTRY DOOR

INCHES

	4	8	12	16	20	24	28	32	34
4	200	200	200	200	200	200	185	160	150
8	200	200	200	200	200	180	160	145	130
12	200	200	190	180	165	155	140	130	115
16	200	200	180	155	145	135	125	115	110
20	200	200	165	145	125	120	115	105	95
24	200	180	155	135	120	110	105	95	90
28	185	160	140	125	115	105	95	90	80
32	160	145	130	115	105	95	90	80	70
36	140	125	115	105	95	90	85	75	
40	120	120	110	100	90	85	80	65	
44	120	110	100	90	85	80	70		
48	100	95	90	85	80	75	60		

INCHES

## FORWARD ENTRY DOOR

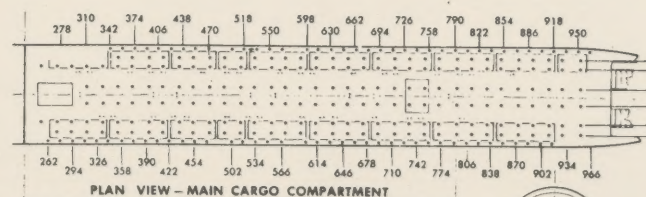
INCHES

	4	8	12	16	20	24	28	32	34
4	214	214	214	214	214	214	210	180	160
8	214	214	214	214	214	214	210	150	135
12	214	214	190	190	180	170	170	130	120
16	214	214	190	140	130	125	120	115	110
20	214	214	180	130	120	115	110	110	105
24	214	214	170	125	115	105	100	95	95
28	210	210	170	120	110	100	95	90	85
32	180	150	130	115	110	95	90	80	80
36	140	130	110	100	100	90	80	75	70
40	130	110	110	100	95	85	70	65	65
44	120	110	100	95	90	80	70	60	60
48	100	80	70	70	70	65	60	55	55
52	90	80	70	50	50	50	50	40	40

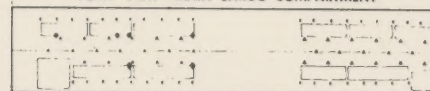
INCHES

## CARGO COMPARTMENT—FORWARD &amp; AFT

## TIE DOWNS



PLAN VIEW—MAIN CARGO COMPARTMENT



REAR VIEW



ENGINE CRADLE  
FITTING WITH  
EYEBOLT  
(Ultimate strength  
6000 pounds normal  
to floor plus  
3000 pounds parallel  
to floor when  
eyebolt is used)



SAFETY BELT  
AND CARGO  
TIEDOWN FITTING  
(Ultimate strength  
200 pounds in  
any direction)



TROOP SEAT  
\* CARGO TIEDOWN  
FITTING  
(Ultimate strength  
1250 pounds  
normal to floor  
plus 500 pounds  
parallel to floor  
in any direction)



\* CARGO TIEDOWN  
(Ultimate strength  
200 pounds in  
any direction)



STANDARD  
\* CARGO TIEDOWN  
FITTING AND STUD  
(Ultimate strength  
1250 pounds  
normal to floor  
plus 500 pounds  
parallel to floor  
in any direction)



LITTER SUPPORT  
STRAP FITTING  
(Used only when  
litters are installed)